Reply to OA of September 30, 2003

**AMENDMENTS TO THE CLAIMS:** 

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:** 

Claim 1 (currently amended): A semiconductor laser device comprising:

a first nitride based semiconductor layer including a first conductivity type cladding layer and

an active layer and containing at least one of boron, aluminum, gallium, indium and thallium;

a current blocking layer, formed on said first nitride based semiconductor layer, having a

striped opening; and

a second nitride based semiconductor layer, formed on said first nitride based semiconductor

layer in said striped opening, including a second conductivity type second cladding layer

and containing at least one of boron, aluminum, gallium, indium and thallium, wherein

said current blocking layer includes a multilayer structure of at least one first layer of a nitride

based semiconductor containing at least one of aluminum and boron and at least one second layer

of a nitride based semiconductor containing indium and having a smaller band gap than said first

layer.

Claim 2 (previously presented): The semiconductor laser device according to claim 1,

wherein

U.S. Patent Application Serial No. 09/532,775

Amendment dated February 17, 2004

Reply to OA of September 30, 2003

said at least one first layer of a nitride based semiconductor has a larger aluminum

composition ratio than that of said at least one second layer of a nitride based semiconductor or a

larger boron composition ratio than that of said at least one second layer of a nitride based

semiconductor, and

said at least one second layer of a nitride based semiconductor has a larger indium

composition ratio than that of said at least one first layer of a nitride based semiconductor.

Claim 3 (Currently Amended) The semiconductor laser device according to claim 1,

wherein said first nitride based semiconductor layer further includes said second conductivity type

first cladding layer provided between said active layer and [[a]] said second conductivity type second

cladding layer in said nitride based semiconductor layer.

Claim 4 (original): The semiconductor laser device according to claim 1, wherein

said at least one first layer includes at least two first layers, and said at least two first layers

and said at least one second layer are alternately stacked.

Claim 5 (original): The semiconductor laser device according to claim 1, wherein the mean refractive index of said current blocking layer is smaller than the refractive index of said second nitride based semiconductor layer in said striped opening.

Claim 6 (original): The semiconductor laser device according to claim 5, wherein the thickness of each of said at least one first layer is larger than the thickness of each of said at least one second layer.

Claim 7 (original): The semiconductor laser device according to claim 3, wherein the mean band gap of said current blocking layer is larger than the band gap of said second conductivity type second cladding layer.

١,

Claim 8 (original): The semiconductor laser device according to claim 7, wherein said active layer includes at least one quantum well layer and at least two quantum barrier layers alternately stacked, and

the band gap of said at least one second layer is larger than the band gap of said at least one quantum well layer.

Claim 9 (original): The semiconductor laser device according to claim 3, wherein said active layer contains indium, gallium and nitrogen, said at least one first layer contains at least one of aluminum and boron as well as gallium and nitrogen,

said at least one second layer contains indium, gallium and nitrogen, and said first conductivity type cladding layer, said second conductivity type first cladding layer and said second conductivity type second cladding layer contain aluminum, gallium and nitrogen.

Claim 10 (original): The semiconductor laser device according to claim 9, wherein said at least one first layer has a larger aluminum composition ratio than that of said second conductivity type second cladding layer or a larger boron composition ratio than that of said second conductivity type second cladding layer.

Claim 11 (original): The semiconductor laser device according to claim 9, wherein said active layer includes at least one quantum well layer containing indium, gallium and nitrogen and at least two quantum barrier layers containing indium, gallium and nitrogen, alternately stacked, and the indium composition ratio of said at least one quantum well layer is larger than the indium composition ratio of said at least two quantum barrier layers.

U.S. Patent Application Serial No. 09/532,775 Amendment dated February 17, 2004 Reply to OA of September 30, 2003

Claim 12 (original): The semiconductor laser device according to claim 1, wherein the mean band gap of said current blocking layer is substantially equal to or smaller than the band gap of said active layer.

Claim 13 (original): The semiconductor laser device according to claim 12, wherein said active layer includes at least one quantum well layer and at least two quantum barrier layers alternately stacked, and

the mean band gap of said current blocking layer is substantially equal to or smaller than the mean band gap of said active layer.

Claim 14 (original): The semiconductor laser device according to claim 13, wherein the band gap of said at least one second layer is smaller than the band gap of said at least one quantum well layer.

Claim 15 (original): The semiconductor laser device according to claim 14, wherein said active layer contains indium, gallium and nitrogen,

said at least one first layer contains at least one of aluminum and boron as well as indium, gallium and nitrogen,

said at least one second layer contains indium, gallium and nitrogen, and

U.S. Patent Application Serial No. 09/532,775

Amendment dated February 17, 2004

Reply to OA of September 30, 2003

said first conductivity type cladding layer, said second conductivity type first cladding layer

and said second conductivity type second cladding layer contain aluminum, gallium and nitrogen.

Claim 16 (original): The semiconductor laser device according to claim 15, wherein

said active layer includes at least one quantum well layer containing indium, gallium and

nitrogen and at least two quantum barrier layers containing indium, gallium and nitrogen, alternately

stacked, and the indium composition ratio of said at least one quantum well layer is larger than the

indium composition ratio of said at least two quantum barrier layers.

Claim 17 (original): The semiconductor laser device according to claim 3, wherein

said first nitride based semiconductor layer further includes a first conductivity type light

guide layer provided between said first conductivity type cladding layer and said active layer and a

second conductivity type light guide layer provided between said active layer and said second

conductivity type first cladding layer.

Claim 18 (original): The semiconductor laser device according to claim 3, further

comprising:

U.S. Patent Application Serial No. 09/532,775 Amendment dated February 17, 2004 Reply to OA of September 30, 2003

a third nitride based semiconductor layer, formed on said current blocking layer and said second nitride based semiconductor layer, containing at least one of boron, aluminum, gallium, indium and thallium.

Claim 19 (original): The semiconductor laser device according to claim 18, wherein said third nitride based semiconductor layer includes a third cladding layer of said second conductivity type and a second conductivity type contact layer.

Claim 20 (original): The semiconductor laser device according to claim 18, wherein said third nitride based semiconductor layer includes a second conductivity type contact layer.